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COAL FATAL

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF MINES
DIVISION OF COAL MINE INSPECTION

00-307
OF

REPORT OF FATAL COAL OUTBURST(BUMP) ACCIDENT
DUTCH CREEK NO. 1 MINE
MID-CONTINENT COAL AND COKE COMPANY
REDSTONE, PITKIN COUNTY, COLORADO

October 3, 1969

By

I. J. Ratliff
Coal Mine Inspector(Roof Control Specialist)

and

J. Freeman
Coal Mine Inspector Supervisor

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Originating Office - Bureau of Mines
P. O. Box 15037, Denver, Colorado 80215
A. C. Moschetti, District Manager
Coal Mine Safety, District E

widow and 4
5:45 P.M.

John H. Kitchens,
continuous-mining machine

58 mg

FATAL COAL OUTBURST(BUMP) ACCIDENT
 DUTCH CREEK NO. 1 MINE
 MID-CONTINENT COAL AND COKE COMPANY
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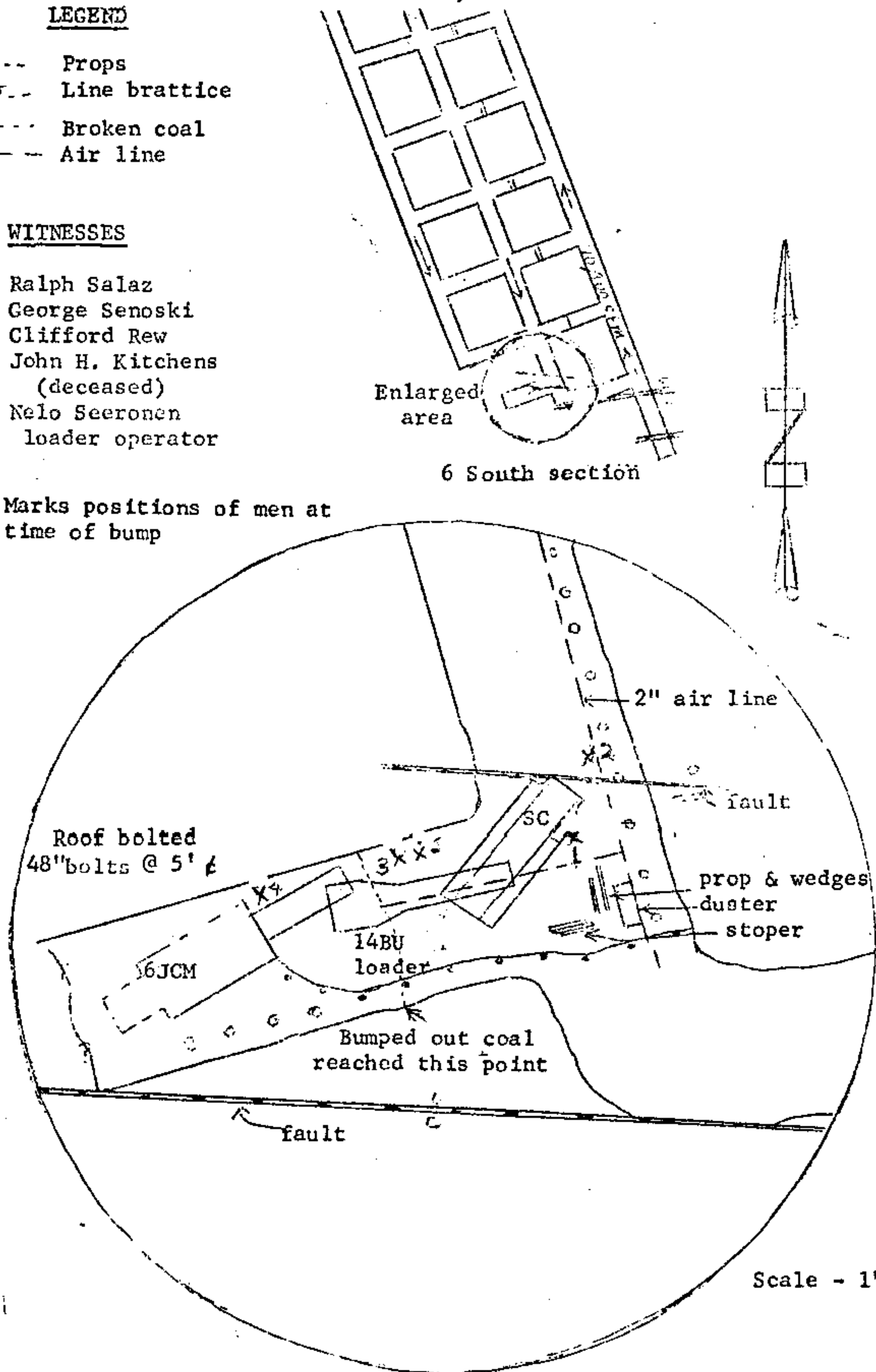
LEGEND

- Props
 ○○○--- Line brattice
 - - - - Broken coal
 - - - - Air line

WITNESSES

1. Ralph Salaz
2. George Senoski
3. Clifford Rew
4. John H. Kitchens
 (deceased)
5. Nelo Seeronen
 loader operator

X - Marks positions of men at
 time of bump



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INTRODUCTION

This report is based on an investigation made in accordance with provisions of the Federal Coal Mine Safety Act (66 Stat. 692; 30 U.S.C. Sec. 451-483) as amended.

John H. Kitchens, age 42, continuous-mining machine operator, was killed instantly about 5:45 p.m., Friday, October 3, 1969, when buried by a pile of coal, which resulted from a bump at the face of a crosscut being driven from No. 2 entry to No. 3 entry, No. 6 south section, in Dutch Creek No. 1 mine. The deceased had 20 years' mining experience, of which 22 months were with the Mid-Continent Coal and Coke Company. He had about 2 months' experience operating continuous-mining machines. Kitchens is survived by his widow and four dependent children.

A. C. Moschetti, District Manager, District E, Denver, Colorado was notified of the accident by Robert Delaney, vice president and general councilor of the company, about 7:15 p.m., October 3, 1969, and the investigation was made the following day.

GENERAL INFORMATION

The mine is opened by seven slopes; No. 2 north entry was driven to the surface. Development is in the Coal Basin coal bed, which averages 84 inches in thickness and dips approximately 15 degrees southwesterly. A total of 88 men, 58 underground and 30 on the surface, was employed on two coal-producing shifts a day, 6 days a week. Average daily production of 1,500 tons of coal was mined with ripper-type continuous-mining machines and discharged on the mine floor.

Mining was by a room-and-pillar method. Main slopes were driven seven abreast, and room entries were driven in sets of three and four. Entries were 18 to 20 feet wide. Crosscuts, 18 to 20 feet wide, were from 80 to 100 feet apart. Pillars were extracted by a pocket-and-fender method.

Immediate roof was laminated shale; main roof was sandstone. The floor was soft shale and coal. Roof control plans, suitable for roof conditions and system of mining, were adopted, posted at the mine, and followed. The plan required permanent props to be set not more than 6 feet apart and kept to within 15 feet of the working faces; width of active roadways was not to exceed 14 feet from props to ribs; maximum clearance on curves was 16 feet. In all places except active roadways, props were to be set 6 feet apart with not more than 12 feet of clearance. Roof bolts were used in conjunction with conventional timber. Roof in No. 6 south section where the accident occurred was supported with props and roof bolts. Roof control appeared adequate.

The mine is classed gassy in accordance with laws of the State. Preshift, on-shift, and weekly examinations were made and recorded.

Information for this report was obtained from observations at the scene of the accident, from statements of company officials, and from Clifford Rew, unit foreman, Ralph Salaz, shuttle-car operator, and George Senoski, continuous-mining-machine helper, who were witnesses.

The investigating committee consisted of:

Company Officials

John A. Reeves, vice president and general manager
Robert Delaney, vice president and general councilor
Edward Selan, superintendent of mines
Max Wareham, general foreman
John Turner, engineer
Robert Henderson, night foreman
Clifford Rew, unit foreman

Redstone Workers Association

Arthur Gore, president
Ray Southerland, safety committeeman

Colorado Coal Mine Inspection Department

Oscar Rice, district inspector

United States Bureau of Mines

I. J. Ratliff, coal mine inspector (roof control specialist)
J. Freeman, coal mine inspection supervisor

Management of the Dutch Creek No. 1 mine consists of a vice president and general manager, superintendent of mines, general mine foreman, night foreman, and unit foremen for all production crews. Equipment maintenance foremen are employed on each shift. Safety meetings are

conducted with employees every 2 months. A \$100 savings bond is presented to the unit foremen whose crews work 6 months without a reportable accident. Most of the employees were trained in first-aid, and two teams (12 men) were trained in mine rescue within the last 12 months. Accident prevention training has been conducted for supervisors by the Bureau of Mines, but has not been conducted for employees.

A procedure for reporting all accidents that result in injuries is followed.

A total of 58 accidents, of which two were lost-time, occurred at this mine in 1968. The accident frequency and severity rates for 1968 were as follows:

Frequency	6.41
Severity	113

Two lost-time accidents and one fatal accident occurred in 1969, prior to this accident. The last Federal inspection was completed July 18, 1969.

DESCRIPTION OF ACCIDENT

The afternoon production crew for No. 6 south section departed from the surface at 3 p.m., and arrived on the section about 3:20 p.m. Clifford Rew, unit foreman, examined the section for gas and other hazards, and found conditions normal. The water line in the return airway No. 1 entry was extended and brattice material was removed from behind stoppings. Two props were set on the left side of the place and the line brattice was extended close to the face of the crosscut (working place) of No. 2 entry. After the Joy 6JCM miner was serviced John H. Kitchens, miner operator, tested for gas and proceeded to mine coal. The coal discharged onto the floor was picked up by a Joy 14-BU loading machine and loaded into cable-reel shuttle cars. After 24 shuttle cars of coal were loaded, Rew instructed Kitchens to stop mining after finishing the sump on the right side of the place to permit roof bolting. Active workings in this area were under about 2,300 feet of burden.

Rew stated that fine coal dust, reddish in color, was observed along the roof at the face of the crosscut immediately prior to the outburst. This is not unusual when a bump is imminent. George Senoski, miner helper, was at the left side of the loading machine; Nelo Seeronen, loading machine operator, was at the right side of the loading machine; Ralph Salaz, shuttle-car operator, was in the shuttle car behind the loading machine; Rew was outby the miner alongside the loading machine; and Kitchens was at the tailpiece on the right side of the continuous-mining machine when the face bumped and threw coal outby the tailpiece of the miner. Forces from the coal striking the loading machine and shuttle car knocked Salaz out of the shuttle car. Coal from the outburst covered the continuous-mining machine and Kitchens. Senoski was knocked unconscious. The line brattice was knocked down, short-circuiting the air.

Salaz disconnected power at the power center about 200 feet outby the continuous miner. About 3 minutes after the bump, Senoski was removed to fresh air and revived. He was not otherwise injured. After ventilation was restored, Rew made tests with a methanometer and detected 2 percent methane at the outby end of the tailpiece of the miner and 3.9 percent methane in the immediate split return.

Hand shovels were used to remove coal from around the tailpiece of the miner on the operator's side to locate Kitchens after the line brattice was repaired. Reportedly, Kitchens' head was exposed about 15 minutes after the bump; there was no sign of life. He was in a squatting position, facing outby. Robert Henderson, night foreman, and the maintenance crew arrived on the section about this time and recovered Kitchens' body about 7 p.m. His right leg, caught under the miner conveyor hoses and fractured, prevented him from escaping. He also received a wound on the back of his head. The body was removed from the mine and taken by ambulance to Farnum's Mortuary, Glenwood Springs, Colorado.

Reportedly, a severe bump occurred in this section of the mine about 10:30 p.m., Thursday, October 2, 1969.

The roof and floor showed no indication of being disturbed by the bump. There was no evidence of weight or heaving bottom on timber supports. Some sloughing of ribs was noted on the right rib of No. 2 entry, outby the crosscut where the accident occurred and on the right rib of No. 3 entry at the turn of the last open crosscut between Nos. 2 and 3 entries. It is not unusual for outbursts (bumps) to occur during continuous-mining operations, particularly when mining in the vicinity of faults.

The continuous miner was equipped with a methane monitor which automatically disconnects the electric power from the machine when a predetermined percent of methane is detected. Mine management recognized the danger of an ignition or explosion as a result of a short-circuit in a trailing cable following a bump that disperses large quantities of methane and coal dust in the mine atmosphere. Plans were in progress to connect the methane monitor on the miner to the power distribution center for the section to eliminate this hazard.

A permissible-type drill, equipped with a 25-horsepower motor, capable of drilling a 9-inch-diameter hole for a distance of 100 feet, has been purchased by the company and delivery was expected in the immediate future. The drill will be used in an attempt to relieve pressure and trigger coal outbursts in suspected bump areas. Management proposes to change the mining plan so as to extract coal under lesser burden, pending further investigations and research regarding the cause of coal outbursts (bumps).

SUMMARY OF FINDINGS

1. Faults were instrumental in coal outbursts.
2. Hard shale and thick sandstone about 2,300 feet in thickness overlaid the coalbed where the accident occurred.

3. The floor was comprised of soft material which afforded little resistance to pressure.
4. Mining was adjacent to a fault.

CAUSE OF ACCIDENT

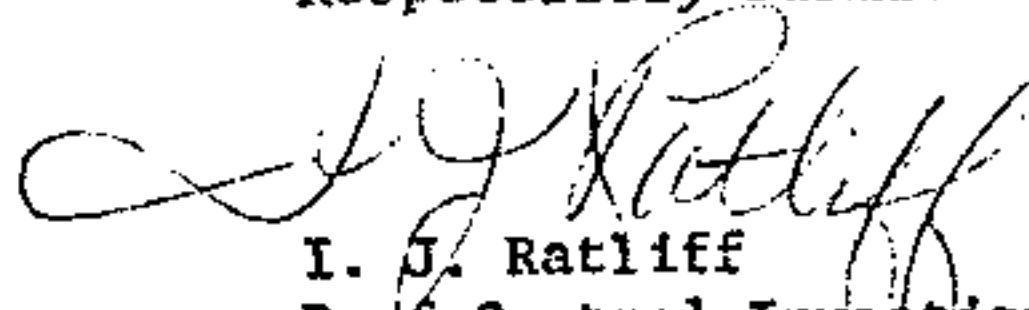
It was the consensus of the committee that the coal outburst (bump) resulted from a combination of pressure from heavy burden, gas, and the geological structure of the area.

A cooperative study of outburst conditions in this mine has been initiated by the U.S. Bureau of Mines and management, and the study is in progress.

ACKNOWLEDGMENT

The cooperation of company officials, employees, and the State mine inspector during this investigation is gratefully acknowledged.

Respectfully submitted,



I. J. Ratliff
Roof Control Investigator

/s/ J. Freeman
J. Freeman
Coal Mine Inspection Supervisor